

# Vertex N

N-type i-TOPCon BACKSHEET MONOCRYSTALLINE MODULE

PRODUCT: TSM-NE19R

POWER RANGE: 590-625W

## 625W

MAXIMUM POWER OUTPUT

## 0~+5W

POSITIVE POWER TOLERANCE

## 23.1%

MAXIMUM EFFICIENCY



### High customer value

- Standardized module size with flagship module power, 30W higher compared with conventional technology
- Low Voltage design with higher string power, effectively reducing BOS (Balance of System) and LCOE (Levelized Cost of Energy) by 1%~5%
- Suitable for all scenario, especially C&I, residential, and ground applications
- Higher container space utilization effectively reduces the freight cost
- Excellent compatibility with existing mainstream system components



### High power up to 625W

- Up to 23.1% module efficiency, on 210 innovative platform
- Patented i-TOPCon technology with continuous efficiency improvement, including contact resistance reduction, rear reflection enhancement and edge quality repairment



### High reliability

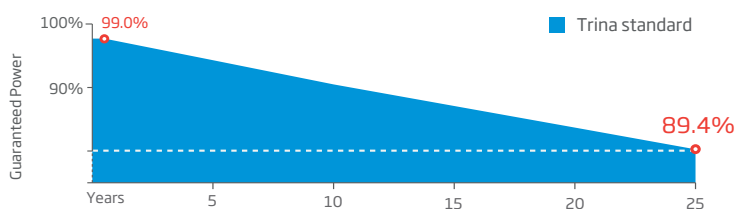
- Minimized micro-cracks with innovative non-destructive cutting technology and high-density packaging
- Reduced risks of hot-spot with half-cut technology
- Certified high resistance against salt, ammonia, sand, PID, LID, LeTID
- Sustainable in harsh environments and extreme weather conditions



### High energy yield

- Excellent low irradiation performance, validated by 3rd party
- Lower temperature coefficient (-0.29%/°C)

### Trina Solar's Backsheet Performance Warranty

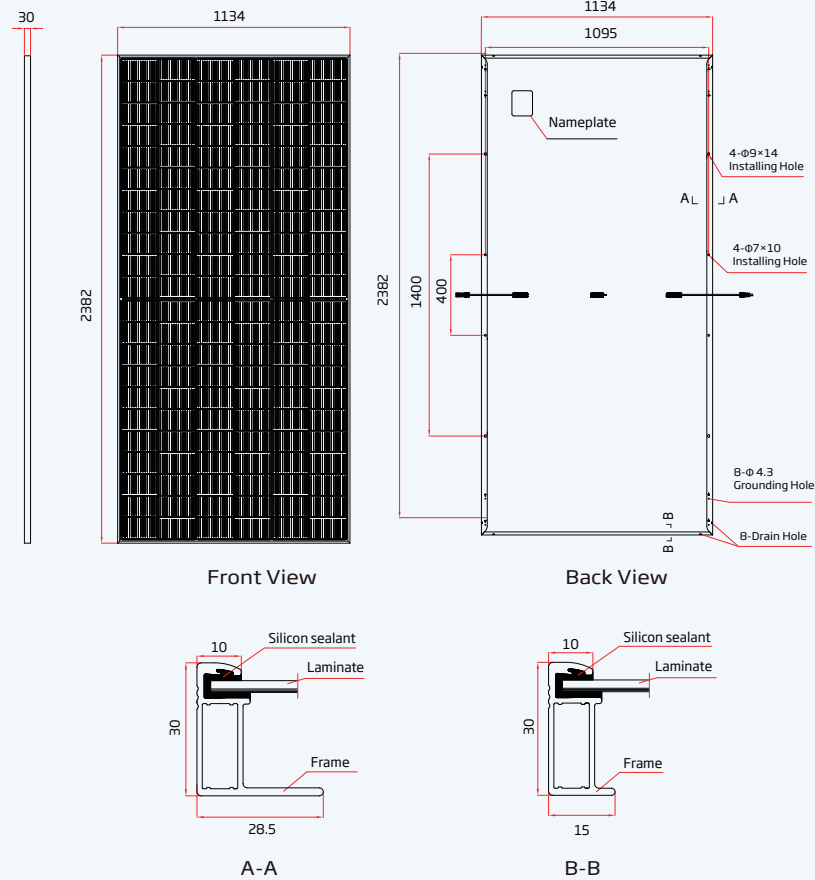


### Comprehensive Products and System Certificates

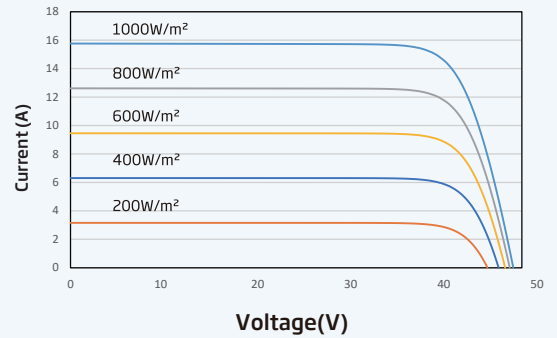


IEC61215/IEC61730/IEC61701/IEC62716/UL61730  
 ISO 9001: Quality Management System  
 ISO 14001: Environmental Management System  
 ISO14064: Greenhouse Gases Emissions Verification  
 ISO45001: Occupational Health and Safety Management System

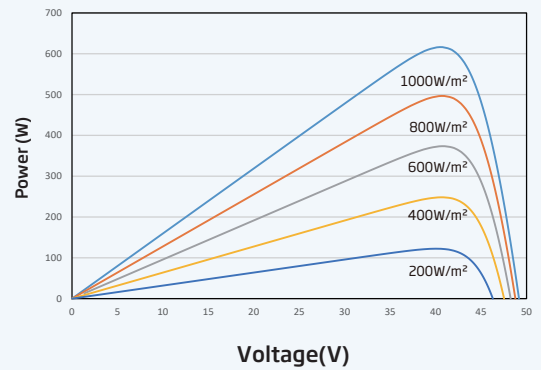
DIMENSIONS OF PV MODULE(mm)



I-V CURVES OF PV MODULE(610W)



P-V CURVES OF PV MODULE(610 W)



ELECTRICAL DATA (STC)

Peak Power Watts- $P_{MAX}$ (Wp)*	595	600	605	610	615	620	625
Power Tolerance- $P_{MAX}$ (W)	0 ~ +5						
Maximum Power Voltage- $V_{MPP}$ (V)	40.0	40.3	40.5	40.8	41.1	41.4	41.6
Maximum Power Current- $I_{MPP}$ (A)	14.89	14.91	14.94	14.96	14.98	14.99	15.00
Open Circuit Voltage- $V_{OC}$ (V)	48.1	48.4	48.7	49.0	49.3	49.6	49.8
Short Circuit Current- $I_{SC}$ (A)	15.76	15.80	15.83	15.86	15.89	15.91	15.93
Module Efficiency $\eta$ (%)	22.0	22.2	22.4	22.6	22.8	23.0	23.1

ELECTRICAL DATA (NOCT)

Maximum Power- $P_{MAX}$ (Wp)	454	459	462	466	470	474	477
Maximum Power Voltage- $V_{MPP}$ (V)	37.6	37.9	38.1	38.3	38.6	38.8	39.0
Maximum Power Current- $I_{MPP}$ (A)	12.07	12.11	12.13	12.16	12.19	12.20	12.21
Open Circuit Voltage- $V_{OC}$ (V)	45.7	46.0	46.2	46.5	46.8	47.1	47.3
Short Circuit Current- $I_{SC}$ (A)	12.69	12.73	12.75	12.78	12.80	12.82	12.84

NOCT: Irradiance at 800W/m<sup>2</sup>, Ambient Temperature 20°C, Wind Speed 1m/s.

MECHANICAL DATA

Solar Cells	N-type i-TOPCon Monocrystalline
No. of cells	132 cells
Module Dimensions	2382×1134×30 mm (93.78×44.65×1.18 inches)
Weight	27.9kg (61.51 lb)
Glass	3.2 mm (0.13 inches), High Transmission, AR Coated Heat Strengthened Glass
Encapsulant material	POE/EVA
Backsheet	White
Frame	30mm(1.18 inches) Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm <sup>2</sup> (0.006 inches <sup>2</sup> ) Portrait: 350/280 mm(13.78/11.02 inches) Length can be customized
Connector	MC4 EV02 / TS4 Plus / TS4*

\*Please refer to regional datasheet for specified connector.

TEMPERATURE RATINGS

NOCT (Nominal Operating Cell Temperature)	43°C (±2°C)
Temperature Coefficient of $P_{MAX}$	-0.29%/°C
Temperature Coefficient of $V_{OC}$	-0.24%/°C
Temperature Coefficient of $I_{SC}$	0.04%/°C

MAXIMUM RATINGS

Operational Temperature	-40~+85°C
Maximum System Voltage	1500V DC (IEC)
Max Series Fuse Rating	30A

WARRANTY

12 year Product Workmanship Warranty
25 year Power Warranty
1% first year degradation
0.4% Annual Power Attenuation

(Please refer to product warranty for details)

PACKAGING CONFIGURATION

Modules per box: 36 pieces
Modules per 40' container: 720 pieces